CORNELL UNIVERSITY

OFFICIAL PUBLICATION

SEPTEMBER 23, 1953

Graduate School of Medical Sciences

ANNOUNCEMENT

FOR 1953-54 SESSIONS

GRADUATE SCHOOL OF MEDICAL SCIENCES

Cornell University Medical College
1300 York Avenue
New York 21, N.Y.

CORNELL UNIVERSITY OFFICIAL PUBLICATION

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Contents

Calendar

1953

Sept. 8–9	Registration.
Sept. 9	Opening exercises, 3:30 p.m.
Sept. 10	Instruction begins, 9 a.m.
Oct. 12	Columbus Day – holiday.
Oct. 13	Last day for payment of tuition for term.
Nov. 25	Fall trimester ends, 5 p.m.
Nov. 26–29	Thanksgiving recess.
Nov. 30	Winter trimester begins, 9 a.m.
Dec. 19	Instruction ends, 1 p.m. – Christmas recess.

1954

Jan. 4	Instruction resumes, 9 a.m.
Feb. 4–5	Registration for second semester (applicable to students not registered previously for the second term).
Feb. 12	Lincoln's Birthday – holiday.
Feb. 22	Washington's Birthday – holiday.
March 1	Last day for payment of tuition for the term.
March 2	Winter trimester ends, 5 p.m.
March 3–10	Spring recess.
March 11	Spring trimester begins, 9 a.m.
May 28	Instruction ends, 5 p.m.
	Last day for completing all requirements (including payment of graduating fees) for June degrees.
June 9	Commencement.

Cornell University
Graduate School of Medical Sciences

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Cornell University Medical College

GRADUATE SCHOOL HISTORY

WORK leading to an advanced degree was first offered in the Medical College in 1912 as a cooperative arrangement with the Graduate School of Cornell University. Under the plan as originally announced, students registered for an advanced degree in the Medical College, but in all respects they were subject to the rules and regulations prevailing at the University. The departments offering graduate instruction were identified in the first announcement merely as the "scientific departments."

Graduate work has continued to occupy a place in the Medical College since the year it was established, and advanced degrees have been awarded in anatomy, bacteriology and immunology, biochemistry, pathology, pharmacology, physiology and biophysics, and public health and preventive medicine.

THE GRADUATE SCHOOL OF MEDICAL SCIENCES

In June, 1950, the trustees of Cornell University approved a plan designed to utilize the staff and facilities of the Sloan-Kettering Institute for instruction leading to advanced degrees under the Graduate Faculty of the University. Since the Cornell University Medical College and the Sloan-Kettering Institute were already closely associated, arrangements have been carried forward which make possible a cooperative plan for graduate work. By action of the trustees in January, 1952, the Graduate School of Medical Sciences was established, which, with the approval of the Graduate Faculty of Cornell University, "shall have full responsibility for advanced and professional degrees granted for study in residence at the New York City campus of Cornell University."

FACILITIES

THE MEDICAL COLLEGE . . . The five buildings of the College extending along York Avenue from Sixty-eighth to Seventieth Streets contain the classrooms, student laboratories, library, and research facilities for undergraduate medical teaching and for students doing graduate work. The regular course of instruction to medical students is conducted for the most part on the second and third floors of the Medical College.

Students in the Graduate School carry on their work on all floors of the College building. They are not only eligible to take any of the subjects with the regular medical students, but in most instances certain of these courses are required of the candidate for an advanced degree.

THE SLOAN-KETTERING INSTITUTE . . . The Memorial Center for Cancer and Allied Diseases comprises the city block between York and First Avenues from Sixty-seventh to Sixty-eighth Street. In the center of the group of buildings on the Sixty-eighth Street side is located the Sloan-Kettering Institute, a thirteen story structure, devoted primarily to research work pertaining to cancer and allied conditions. Ample opportunities for advanced training are offered in the Institute by reason of its special facilities and its staff of experienced investigators. On the several floors of the building are located laboratories and modern equipment for studies in bacteriology, biochemistry, biophysics, cell physiology, experimental cancer chemotherapy, experimental pathology, immunochemistry, pharmacology, radiation biology, steroid metabolism, and virology.

PURPOSE AND NATURE OF THE GRADUATE SCHOOL

It is the purpose of the Graduate School to offer facilities for advanced study and research so that students may obtain a comprehensive view of a field of knowledge and receive the training required for independent investigation in that field. In providing this opportunity, the School makes it possible for the students to associate freely with mature scholars who will give them such aid and direction as they may need. Accomplishment is judged primarily by the evidence of growing responsibility for the advancement of knowledge and not by fulfillment of routine requirements or by courses and credits. The Faculty of the School requires of all candidates for advanced degrees a period of study in residence, the mastery of some one subject, an adequate acquaintance with allied subjects, the passing of a final examination, and the presentation of a satisfactory thesis.

General Regulations

QUALIFIED students will be accepted in the Graduate School of Medical Sciences for work leading to the M.S. or Ph.D. degree and will carry out their program of study under the supervision of Faculty members who hold the rank of professor, associate professor, or assistant professor on the teaching staffs of Cornell University Medical College and the Sloan-Kettering Institute.

The training is designed to develop respect for truth and independent responsibility for achieving it. Insofar as accepted procedures for advanced study admit, the program of each candidate is individual and is planned to utilize all relevant resources of the two components of the Graduate School of Medical Sciences. Separate fields of instruction, however, are listed on pages 18 to 21 of this Announcement for the purpose of indicating administrative divisions and the major areas for advanced study.

The statements contained in this Announcement are intended to be mainly descriptive rather than regulatory. The regulations governing programs for advanced degrees are published by the Graduate Faculty in a pamphlet entitled *Code of Legislation,* which is available for consultation in the Administration Office of the Medical College.

ADMISSION

To be admitted to the Graduate School of Medical Sciences, an applicant (1) must hold a baccalaureate degree from a college or university of recognized standing, or have done work equivalent to that required for such a degree; (2) must show promise of ability to pursue advanced study and research as judged by his previous scholastic record or otherwise; and (3) must have had adequate preparation to enter upon graduate study in the field chosen.

In most instances the number of candidates that can be accommodated in the different fields of study in the Graduate School of Medical Sciences is relatively small because of the specialized character of the work and limitations of facilities. A student desiring to be considered for work in the Graduate School should, therefore, first decide on the field of his primary interest and then consult the professor in charge of this subject. If encouraged to proceed, the student may then submit his application and other credentials.

An application for admission should be made on a special form for that purpose, which may be obtained from the office of the Graduate School of Medical Sciences, 1300 York Avenue, New York 21, N.Y. No application will be acted upon until all the credentials enumerated in this form have been filed.

A student is not admitted to the Graduate School until a formal notice of acceptance has been issued by the Associate Dean of the Graduate School of Medical Sciences of Cornell University. If the candidate is accepted with conditions, these will be recorded in the notice of admission.

CREDENTIALS

Graduates of American colleges and scientific schools approved by the district association, or the American Association of Universities, who

hold a baccalaureate degree and who give other evidence of promise and ability to pursue graduate study are eligible to make application for admission. For those who have studied in a foreign university where the degree is not given, documentary evidence will be required that the training completed is the equivalent of the degree.

The candidate seeking admission to the Graduate School of Medical Sciences is required to have submitted an official transcript of record covering all work taken previously, including any graduate studies as well as the undergraduate courses. In evaluating the acceptability of an applicant, it will be helpful to have two supporting letters sent directly to the office of the Graduate School of Medical Sciences from persons intimately acquainted with the applicant and qualified to judge his capacity to do graduate work. Likewise, scores made in the Graduate Record Examination, although not required, will prove helpful in determining the acceptability of the applicant. The Graduate Record Examination is administered four times each year throughout the United States and Canada. It does not require any special preparation and may be taken upon application and the payment of moderate fees. Inquiries about the examination and applications for taking it should be addressed to the Educational Testing Service, P.O. Box 592, 20 Nassau St., Princeton, N.J.

For students planning to take up graduate work at the beginning of the academic year in September, the application and all supporting data should be in the office of the Graduate School at the Medical College not later than March first.

REGISTRATION

Students taking work in the Graduate School leading to, or in contemplation of, an advanced degree must register in the Administration Office of the Medical College at the beginning of each academic year. It is expected that students matriculated in the Graduate School of Medical Sciences will continue for the full academic year. In the event, however, that circumstances require attendance for less than a year, special arrangements may be made for registering for one semester. A graduate student who has completed the requirements of residence for his degree and who remains in residence while working on his thesis or while doing other work in contemplation of a degree must register each term in which he is thus engaged.

A graduate student who discontinues his work for any reason during a term in which he is registered should immediately report this fact to the Associate Dean in order to obtain an official withdrawal or an honorable dismissal.

MAJOR AND MINOR SUBJECTS

The curriculum of a candidate for the degree of M.S. is one major and one minor subject; of a candidate for the degree of Ph.D., one major and two minor subjects. No variation in the number of subjects is allowable. Approved subjects are listed below as separate fields of instruction, where some information is given about them. Specific requirements for each subject are fixed by the member of the Faculty who represents the subject on the candidate's Special Committee; he requires whatever in his judgment is necessary to train the candidate, including registration for courses and seminars and supervised or independent study. Therefore, the program of one candidate bears no necessary relation to the program of another candidate registered for the same subject. The Faculty believes that candidates with major subjects in applied fields usually should elect minor subjects in basic fields.

In the Sloan-Kettering Institute there are no formal courses offered for graduate students. Candidates whose primary interest centers in this part of the Graduate School of Medical Sciences will find it profitable in most instances to elect as a minor subject part of the regular curriculum of the medical course.

SPECIAL COMMITTEES

Special Committees are the means for directing individual candidates in the attainment of the scholarly independence implicit in advanced degrees. While a candidate is choosing his major and minor subjects, he selects eligible members of the Faculty to represent each subject and to serve as his Special Committee. The representative of the major subject is chairman. Any professor, associate professor, or assistant professor is eligible to serve on these committees.

The members selected indicate their willingness to serve by signing the record of major and minor subjects, which is filed with the Associate Dean.

A candidate may change the membership of his Special Committee with the approval of all the members of the newly constituted Committee and of the Associate Dean.

Members of the Special Committee not only instruct or supervise the instruction of a candidate but also certify whether his progress is satisfactory or unsatisfactory, conduct Qualifying and Final Examinations, and approve the thesis. Although they are the candidate's advisers, he alone is responsible for meeting the requirements of the Graduate School.

GRADES

Credit for graduate work is given only when the candidate maintains a satisfactory standard of performance in both his major and his minor

fields of study. Professors having charge of the work of graduate students are required to report to the Associate Dean of the Graduate School of Medical Sciences at the end of each semester, or at the close of each academic year, grade ratings on all students taking work under their direction. These grade reports are given in the following terms: *A* (93–100%), *B* (84–93%), *C* (75–83%) for passable performance, and *F* for all work of an unacceptable standard.

Students whose grade average falls below a *B* may be separated from the Graduate School program.

RESIDENCE REQUIREMENTS

The Faculty regards study in residence as essential. Although requisite depth results from intensive study of a major subject and properly related minor subjects, candidates for an advanced degree should avoid overspecialization.

Consequently, the Graduate Faculty requires of each candidate for a Master's degree a minimum of two residence units and for the doctorate, a minimum of six residence units. One residence unit represents one academic term of full-time study reported by the Special Committee as satisfactorily completed. The fractions of a unit counted toward this requirement, three-fourths, one-half, two-fifths, are granted for (1) study while assisting or instructing in the academic program of the University; (2) study while employed in nonacademic work; (3) study which is reported by the Special Committee as only partially satisfactory. Eligibility to receive residence units and fractions of units is determined by regulations of the Graduate Faculty.

TRANSFER OF RESIDENCE . . . Since no degree is granted unless the candidate has studied in residence for at least two semesters, no residence unit or fraction is granted in fulfillment of the requirements for a Master's degree for study outside this Graduate School. For study in another recognized graduate school while in candidacy for an advanced degree, up to three units may be accepted in fulfillment of doctoral requirements by special action of the Associate Dean. No commitment may be made for acceptance of previous study in another graduate school in lieu of required residence until after the candidate has entered into study in residence in the Graduate School. Then the residence units recommended by the Special Committee on the basis of a transcript of record may not exceed those that would be earned under similar circumstances at Cornell. Study as a candidate or as a special student in an undergraduate college is not acceptable, even though the courses may be designed for graduate students. A candidate for the degree of Ph.D. must complete two of the last four units in successive terms of study at the Graduate School of Medical Sciences.

Each candidate for an advanced degree is expected to complete his study in residence with reasonable continuity. Under any circumstances, a candidate who fails to register during any period of four or more years is dropped from candidacy and may be readmitted only after his Special Committee has stipulated the amount of additional residence to be required. No more than ten years may intervene between the time of first registration and the completion of all requirements for a degree.

LANGUAGE REQUIREMENTS

FOR THE MASTER'S DEGREE . . . Students taking major work for a Master's degree are required to have obtained a reading knowledge of a foreign language. If the candidate's transcript of record indicates that he has passed three college entrance units in one language or two units in each of two languages, he has met the requirements. He must, however, demonstrate to the Language Committee proficiency in one language. A candidate who does not demonstrate proficiency within one month of first registration will be required to complete a minimum of three residence units for the degree and must demonstrate proficiency before beginning the third residence unit. Any Special Committee may, in its discretion, require knowledge of foreign language beyond the announced requirements.

FOR THE DEGREE OF PH.D. . . . Every candidate must demonstrate his ability to read French and German or substitutes approved by the Special Committee. The examination in at least one foreign language must be passed immediately upon admission to candidacy; otherwise, a minimum of seven residence units is required. The extra unit may be waived by the Special Committee if preparation in foreign language is made during a period when the candidate is not receiving residence units. The second language examination should be taken as soon as possible after admission to candidacy. Until it is passed, no residence units beyond four will be allowed. Examinations passed within one month after registration are considered as being passed at the time of registration.

Foreign students may, under regulation, offer English as one foreign language.

EXAMINATIONS

Three oral or oral and written examinations are required by the Graduate Faculty: (1) a Final Examination for the Master's degree; (2) a Qualifying Examination for the degree of Ph.D.; (3) a Final Examination for the degree of Ph.D. Under certain regulations (1) and (2) may be combined. Although other members of the Faculty may be invited to examine the candidate, the Special Committee alone decides whether he

has passed or failed. The Qualifying Examination has the double purpose of determining the ability of the candidate to pursue doctoral studies and of allowing the Special Committee and candidate to plan together a satisfactory program for completion of candidacy. The Qualifying Examination should be taken as early as possible; at all events, the candidate must complete at least three units of residence after passing it. The Final Examination for the doctorate is given in two parts. The first part is on the major and minor subjects (Exam. A) and may be given as much as two terms before the second part on the thesis and related material (Exam. B). Final Examinations are scheduled by the Associate Dean and are announced to the Graduate Faculty so that any member may attend who wishes to do so.

The Special Committee may require any examination which it deems desirable in addition to the three noted above.

ESSAYS AND THESES

Programs in candidacy for the Master's degree are intended to be individually planned and may range widely in content and method. Depending upon the desires and needs of the candidate and the discretion of the Special Committee, they may be composed largely of courses in broad or restricted fields or of informal study under guidance; they may be designed to terminate formal education or to prepare for further advanced study; they may center in a single problem or investigation, or the thesis or essay may be secondary. But at least five days before the Final Examination, the candidate must submit an essay or thesis, approved by all members of his Special Committee, which is acceptable to the Graduate Faculty in both scholarship and literary quality.

A candidate for the doctorate must present a thesis, approved by all members of the Special Committee, which is acceptable to the Graduate Faculty in both scholarship and literary quality and which demonstrates the candidate's respect for truth and independent responsibility for achieving it. Ordinarily, but not necessarily, the thesis is written in the candidate's major field and under the direction of the chairman of his Special Committee. As one of the principal aims of the Graduate Faculty is to have theses given the widest possible circulation and criticism, attempts to curtail or otherwise restrict their circulation will not receive approval.

NONCANDIDATES

Wherever staff and facilities are available, students may be admitted as noncandidates and register for such formal or informal instruction as they are adequately prepared to undertake. The work of such a noncandidate is under the supervision of an adviser selected by the

student and approved by the Associate Dean. He is subject to the general regulations of the Graduate Faculty.

An applicant for admission as candidate for an advanced degree may be advised by the Associate Dean to enter as a noncandidate because his record or statement of training and intentions does not clearly indicate his ability to pursue study in candidacy. In such instances the noncandidate may reapply for admission to candidacy after a period of study not exceeding two semesters. If he is admitted into candidacy, he is not allowed to transfer in fulfillment of residence requirements more than one semester of study.

TUITION AND OTHER FEES

GENERAL REGULATION . . . Tuition and other fees become due when the student registers. Any student who fails to pay his tuition charges, other fees, and indebtedness at the Business Office or who, if entitled to free tuition, fails to claim it at the Business Office and to pay his other fees is thereby dropped from the Graduate School unless the Assistant Treasurer has granted him an extension of time to complete payment. The Assistant Treasurer is permitted to grant such an extension when, in his judgment, the circumstances of a particular case warrant his doing so. A reinstatement fee of $5 is assessed against any student who is permitted to continue or return to his studies after being dropped for default in payments. The assessment may be waived in any instance for reasons satisfactory to the Assistant Treasurer and the Associate Dean, when such reasons are set forth in a written statement. A tuition fee or other fee may be changed by the trustees at any time without previous notice.

MATRICULATION FEE . . . A student who has not previously matriculated at Cornell University or in the Medical College is required to pay a matriculation fee of $15.

GRADUATION FEE . . . A graduation fee of $10 is required of every candidate for an advanced degree. The fee will be returned if the degree is not conferred.

TUITION FEE . . . A tuition fee of $700 an academic year ($350 a semester) is to be paid by all students registered in the Graduate School of Medical Sciences. This charge is payable at the beginning of the academic year, or in two equal parts at the beginning of the fall and spring semesters.

Certain classes of students are exempt from the payment of tuition fee.

1. The exemption applies to graduate students holding certain ap-

pointments as fellows or graduate scholars, and to holders of certain temporary fellowships and scholarships.

2. In addition to students exempt under the charter of the University from the payment of tuition, the following persons, to the extent herein mentioned, are also exempt from payment of fees.

Upon recommendation by the appropriate college dean and by action of the Board of Trustees, for each appointment, waiver of tuition in the Graduate School may be made to a member of the teaching or scientific staff subject to these limitations:

(a) if the salary for the academic year is not greater than $1,600, the tuition fee may be waived entirely;

(b) if the salary is greater than $1,600, but not greater than $1,700, 25 per cent of the tuition will be charged and 75 per cent will be waived;

(c) if the salary is greater than $1,700, but not greater than $1,800, 50 per cent of the tuition will be charged and the balance waived;

(d) if the salary is greater than $1,800, but not greater than $1,900, 75 per cent of the tuition will be charged and the balance waived;

(e) if the salary is greater than $1,900, no waiver will be made.

(The word salary means total pay, that is, base pay plus any bonus.)

A graduate student who returns to the Graduate School of Medical Sciences to present his thesis and to take the final examination for an advanced degree, all other work for the degree having been previously completed, shall register as a "candidate for degree only" and shall pay only an administration fee of $27.

FELLOWSHIPS AND SCHOLARSHIPS

The holder of a fellowship or a scholarship must devote his whole time to his studies, except that he may be called upon to assist in instruction up to a maximum of six clock-hours a week and for such assistance may receive extra compensation. He may not accept any other appointment.

The stipends of fellowships and scholarships are payable at the business office of the Medical College in eight or twelve equal installments, at the option of the holder thereof, with the first payment due October 15 and the other payments due on the fifteenth of each succeeding month.

Fields of Instruction

THE SEVERAL fields of instruction of the Graduate School of Medical Sciences are described in the pages that follow. The title of each field is an approved major or minor subject for candidates for advanced degrees.

INSTRUCTION AT THE MEDICAL COLLEGE

ANATOMY

Associate Professors CHARLES BERRY, JOHN MACLEOD; *Assistant Professors* WILBUR D. HAGAMEN, LAWRENCE W. HANLON (Acting Chairman), JOHN F. SEYBOLT, THEODORE C. GREENE.

Abundant material and sufficient apparatus are available for advanced study and work in the various branches of anatomy: embryology, histology, descriptive and experimental anatomy, neurohistology, and experimental neurology. Students desiring to pursue graduate work in any of these branches must have had in their college courses preliminary training in general zoology and comparative anatomy. A reading knowledge of German and French is essential.

The courses offered for the medical students appear in the *Announcement of the Medical College* and are particularly recommended to those students who have not pursued work of this kind. In addition, the members of the staff offer work in the various phases of anatomy in which they are especially engaged. Technical and practical anatomical work is fully provided.

The requirements for either a major or a minor in anatomy will be determined for each individual case by the department of anatomy, after consultation with the authorized representative of the other departments involved. As a prerequisite for graduate work in anatomy, each student will be expected to have a thorough training in the fundamental sciences of physics, chemistry, and biology, such as is required for admission to the Medical College.

BACTERIOLOGY AND IMMUNOLOGY

Professors JAMES M. NEILL, JOHN Y. SUGG, EDWARD J. HEHRE.

Facilities are available for advanced study and investigation over a broad range in the general field of microbiology and immunology, including subjects directly related to the etiology, epidemiology, and pathogenesis of infectious disease, and also aspects of fundamental importance whose practical application may not be immediately apparent. A graduate student may elect investigations in any of the various aspects, but the opportunities are best for students who direct their major interest toward some aspect related to the fields of current investigation of the department. These fields at present include the synthesis of polysaccharides by microorganisms and by enzymes derived from them, and the serological properties of the polysaccharide products; variations in antigenicity and in pathogenicity of influenza viruses; and immunological aspects of fungi and of mycotic infections.

Prospective majors in the department should have had several college courses in chemistry, physics, and biology. As a rule, considerably more training in chemistry

is expected than is needed to meet the minimum requirements for entrance to medical college, but unusual training or experience in any one of the sciences will be taken into account in the consideration of candidates who may have had less than the usual training in others.

BIOCHEMISTRY

Professor VINCENT DU VIGNEAUD; *Associate Professors* ROY W. BONSNES, DONALD B. MELVILLE, JULIAN R. RACHELE.

Opportunity is offered for advanced work and research in various phases of biochemistry. Adequate chemical and physical equipment and library facilities are provided for the investigation of a considerable variety of problems in the chemistry of the animal and human organism in health and disease.

Graduate students expecting to pursue investigations in biochemistry should have adequate training in inorganic, organic, analytical, and physical chemistry.

Students electing biochemistry as a minor subject are expected to complete the regular medical course in biochemistry, or its equivalent, as a minimum requirement.

PATHOLOGY

Professors JOHN G. KIDD, JOHN M. PEARCE; *Associate Professor* AARON KELLNER; *Assistant Professors* JOHN T. ELLIS, CHARLES T. OLCOTT.

The departmental laboratories are suitably equipped for carrying on graduate study and research problems in pathology. Since members of the staff are engaged in varied investigations concerning etiology and pathogenesis, the department offers wide opportunity for the experimental study of disease. Adequate facilities for the care of animals are available. There is a small departmental library where some of the current journals and reference books are kept on file. The main library is situated on the floor immediately beneath the department and is readily accessible. There is a carefully selected collection of mounted museum specimens, in addition to an active file of preserved gross material for study. The histological collection is likewise rich in material. Autopsies for the entire hospital are performed by the members of the department and offer an opportunity for the study of fresh pathological tissues.

No regular course of study is offered by the department for graduate students, but applicants in this field are given abundant opportunity for special work under the direct supervision of members of the department. Such work may include the investigation of some problem and may be credited towards the applicant's graduate degree.

PHARMACOLOGY

Professors MCKEEN CATTELL, HARRY GOLD; *Associate Professors* CHARLES J. KENSLER, WALTER F. RIKER; *Assistant Professors* FRANK C. FERGUSON, JR., SOLOMON GARB, JOSEPH F. REILLY.

Facilities are available for advanced work and research in both the chemical and pharmacodynamic aspects of pharmacology. Special opportunities are offered for work in the pharmacology of muscle-nerve, enzyme systems, the circulation, the autonomic nerves, and toxicology. The department is well equipped with special apparatus, including electrocardiographs, tissue metabolism techniques, spectrophotometers, and galvanometers for the measurement of heat production in tissues.

Arrangements will be made for individuals or groups to participate in original investigations in ward patients and in ambulatory patients of the clinics. There are special opportunities for work on digitalis, the mercurial diuretics, cinchona alkaloids, and other problems related to the pharmacology of cardiovascular disorders.

An adequate preliminary training in chemistry and physiology is prerequisite for graduate work in pharmacology.

PHYSIOLOGY AND BIOPHYSICS

Professor ROBERT F. PITTS; *Associate Professor* HENRY D. LAUSON; *Assistant Professors* ROGER L. GREIF, RICHARD W. LAWTON, ROY C. SWAN.

Graduate and research training is provided for students who wish to prepare themselves for teaching and research in the physiological aspects of biological science, with special emphasis on the physical and chemical approach; those who desire to prepare themselves more adequately for clinical practice and research by advanced training in some phase of physiology; and those who are entering a career in human biology.

Instruction is at first provided through the medium of formal basic courses in this and other departments of the Medical College, and in the departments of physics and chemistry of neighboring universities. This work is paralleled by similar courses which deal with specialized subjects on a more advanced level. Finally, the student is associated with various members of the staff on a tutorial basis for instruction in special research problems.

PUBLIC HEALTH AND PREVENTIVE MEDICINE

Professor WILSON C. SMILLIE; *Associate Professor* MORTON C. KAHN; *Assistant Professor* HOMER C. WICK, JR.

In this department candidates for the Ph.D., degree may elect parasitology as a major subject. Members of this department have all carried on investigations in tropical countries, and an excellent collection of living and preserved parasitic material is available for study and research.

The medical school courses in both public health and parasitology are acceptable as minor requirements for students who may desire to major in other departments of the University. The department welcomes graduate students who wish to register in special fields. Each application will be considered on its merits, and the work may be arranged in accordance with the desires and purposes of the candidate after consultation with the members of the department.

The laboratories are well equipped for research in public health, epidemiology, serology, and parasitology. Facilities at the Kips Bay-Yorkville District Health Center are available to a limited number of graduate students for the study of certain social aspects of preventive medicine and public health.

It is preferred that the candidate for advanced work in public health and preventive medicine should have a medical degree; he should also possess credit for or the equivalent of the basic course in public health given to the third-year medical students in Cornell. The Department of Public Health and Preventive Medicine does not offer formal graduate courses in public health or in preventive medicine, and the University does not grant advanced degrees in public health.

INSTRUCTION AT THE SLOAN-KETTERING INSTITUTE

BIOCHEMISTRY

Professors OSCAR BODANSKY, GEORGE B. BROWN, THOMAS F. GALLAGHER; *Associate Professors* MARY L. PETERMANN, DAVID PRESSMAN; *Assistant Professors* M. EARL BALIS, RALPH K. BARCLAY, AARON BENDICH, LIEBE F. CAVALIERI, DAVID K. FUKUSHIMA, THEODORE KRITCHEVSKY, PAUL M. ROLL, HELEN Q. WOODARD.

Training is available in the following fields; electrolyte metabolism; enzymology; immunochemistry; chemistry and metabolism of proteins, especially nucleoproteins; chemistry and metabolism of steroids.

Prerequisites include acceptable graduate courses in organic and physical chemistry, biochemistry, and physiology, together with additional requirements in conformance with the individual desires of the students and the interests of the staff.

BIOLOGY AND GROWTH

Professors CORNELIUS P. RHOADS (Pathology), C. CHESTER STOCK (Biochemistry), GEORGE W. WOOLLEY (Biology); *Associate Professors* JOHN J. BIESELE (Biology), ALICE E. MOORE (Biology), FREDERICK S. PHILIPS (Pharmacology); *Assistant Professors* DONALD A. CLARKE (Pharmacology), ROBERT C. MELLORS (Biology), WILLIAM L. MONEY (Biology), H. CHRISTINE REILLY (Bacteriology), HELENE W. TOOLAN (Pathology).

Studies are directed particularly toward the factors which initiate, control, and modify the growth of normal and neoplastic tissues. Following this orientation, training is available in pharmacology, experimental cancer chemotherapy, microbiology, endocrinology, genetics, and virology.

Prerequisite courses will be determined for each individual on the basis of his particular area of interest.

BIOPHYSICS

Associate Professors HAROLD BEYER, JOHN S. LAUGHLIN.

There are special facilities for radiologic physics (including high energy phenomena), radiobiology, tracer work (stable and radioactive), radioautography, soft X-ray absorption, electronics, theory and practice of radiation detection.

Prerequisites include acceptable courses in physics, mathematics through calculus, and acceptable laboratory experience, supplemented by studies in fields closely related to biophysics.

PATHOLOGY

Professor FRED W. STEWART; *Associate Professors* ARTHUR C. ALLEN, FRANK W. FOOTE, JR., HOWARD L. RICHARDSON; *Assistant Professors* PATRICK FITZGERALD, SOPHIE SPITZ.

Special facilities are available for investigation in quantitative cytology and cellular pathology by newer optical methods, cytophysical methods including radioautography, ultraviolet and fluorescent microscopy, and X-ray absorption techniques.

Study in this department is limited to persons holding a medical degree, at least one year of clinical internship, and two years of general pathology.

Students Enrolled in 1952-53

DOCTORS OF PHILOSOPHY

Samuel Gordon, A.B. 1940, M.S. 1949, New York University; Ph.D. 1953, Cornell University — Orangeburg, N.Y.
Jay Roberts, B.S. 1949, Long Island University; Ph.D. 1953, Cornell University — Brooklyn, N.Y.

CANDIDATES FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

Edward Berg, A.B. 1948, Brooklyn College — Brooklyn, N.Y.
Robert J. Brotherton, A.B. 1951, University of California at Santa Barbara — Santa Barbara, Calif.
Edward J. Kuchinskas, B.S. 1949, Queens College — New York, N.Y.
H. Claire Lawler, A.B. 1941, Barnard College; M.S. 1947, New York University — Riverdale, N.Y.
Bertram A. Lowry, B.S. 1947, College of the City of New York; M.S. 1948, University of Illinois — Jackson Heights, N.Y.
Charles C. Otken, B.S. 1949, The Agricultural and Mechanical College of Texas — Falfurrias, Texas
Alexander Scriabine, "Candidate of Medicine" 1948, University of Mainz, Germany — Woodside, N.Y.
Theodore W. Sery, B.S. 1949, Columbia University — Brooklyn, N.Y.
Ralph Vinegar, A.B. 1948, M.S. 1949, New York University — New York, N.Y.
Willard C. Whitehouse, B.S. 1948, Harvard University — New York, N.Y.
Robert A. Wolbach, A.B. 1951, Cornell University — Port Washington, N.Y.
Ruth Woods, A.B. 1937, Hunter College; M.S. 1943, Columbia University — New York, N.Y.

CANDIDATES FOR THE DEGREE OF MASTER OF SCIENCE

Martha L. Ludwig, A.B. 1952, Cornell University — Buffalo, N.Y.
Ronald H. Thompson, A.B. 1940, Adelphi College; M.A. 1951 Columbia University — Jamaica, N.Y.
Lucille Wright, A.B. 1950, Colorado University — Springfield, Mo.

ENROLLEES FOR ADVANCED DEGREES IN 1953–54

George A. Condouris, B.S. 1949, Rutgers University; M.S. 1951, Yale University (Ph.D.) — New Haven, Conn.
Vladimir Kovalenko, A.B. 1953, University of Bridgeport (M.S.) — Bridgeport, Conn.
Albert S. Kuperman, A.B. 1952, New York University (Ph.D.) — New York, N.Y.
Alexander H. Pinkes, B.S. 1947, University of Connecticut (Ph.D.) — Hartford, Conn.
K. Marilyn Smart, B.S. 1945, University of Michigan; M.A. 1951, Columbia University (Ph.D.) — Larchmont, N.Y.
E. Thomas Steadman, A.B. 1950, Amherst College (Ph.D.) — Amherst, Mass.
John J. Taylor, A.B. 1953, Hofstra College (Ph.D.) — Levittown, N.Y.